

ENGAGEMENT TERMINALS FOR DC POWER PACK AND
COPRESSOR

FIELD OF THE INVENTION

The present invention relates to engagement terminals of a DC
5 power pack and a compressor.

BACKGROUND OF THE INVENTION

A conventional DC power pack 90 is disclosed in Fig. 5 and generally includes a casing 91 in which rechargeable batteries are received and a connection frame 92 is connected to a surface of the casing 91 of the
10 pack 90. Three first terminals 93 electrically connected to the rechargeable batteries extend through the casing 91 so as to be engaged with the second terminals 95 on a compressor 94 as shown in Fig. 6. In order to engage with the first terminals 93 of the pack 90, the second terminals 95 are made to be pockets so as to accommodate the first terminals 93. Nevertheless, the first
15 terminals 93 are deformed after being used for a period of time and a gap is defined between the second terminals 95 and the first terminals 93. In other words, the contact area is reduced and the less the contact area is, the higher the resistance produces, so that too much of electric energy becomes heat which is dispensed and wasted.

20 The present invention intends to provide engagement terminals on the power pack and the compressor so that the terminals are securely engaged with each other and the wasted heat is reduced.

SUMMARY OF THE INVENTION

The present invention relates to a power pack which includes a casing and a U-shaped frame is connected on a surface of the casing so as to be connected to two rails on a compressor. A first terminal and two first
5 clamping plates extend from the surface of the casing and are located between two extensions of the U-shaped frame. A detecting pad is located on the surface of the casing and between the first terminal and the first clamping plates.

Each rail has a groove so that the two extensions of the U-shaped
10 frame are engaged with the two grooves. The compressor includes a second terminal and two second clamping plates, wherein the first terminal is clamped between the two second clamping plates and the second terminal is clamped between the two first clamping plates.

The present invention will become more obvious from the
15 following description when taken in connection with the accompanying drawings which show, for purposes of illustration only, a preferred embodiment in accordance with the present invention.

BRIEF DESCRIPTION OF THE DRAWINGS

Fig. 1 is an exploded view to show the power pack and the
20 compressor of the present invention;

Fig. 2 is a perspective view to show the power pack of the present invention;

Fig. 3 is a cross sectional view to show the terminal and the clamping plates of the power pack are engaged with the terminal and the clamping plates on the compressor;

Fig. 4 shows a plane view to show the terminal and the clamping plates of the power pack are engaged with the terminal and the clamping plates on the compressor;

Fig. 5 is a perspective view to show a conventional power pack;

Fig. 6 is a plane view to show the connection of the terminals on the conventional power pack and on the compressor, and

Fig. 7 shows that one of the terminals on the conventional power pack is engaged with the pocket-like terminal on the compressor.

DETAILED DESCRIPTION OF THE PREFERRED EMBODIMENT

Referring to Figs. 1 to 4, the power pack 1 of the present invention comprises a casing 10 in which a rechargeable battery (not shown) is received and a U-shaped frame 11 is connected on a surface of the casing 10. The U-shaped frame 11 includes a thin first extension 111 and a thick second extension 112. A first terminal 12 and two first clamping plates 13 are electrically connected to the battery and extend from the surface of the casing 10. The first terminal 12 and two first clamping plates 13 are located between the first and second extensions 111, 112 of the U-shaped frame 11. A detecting pad 14 is located on the surface of the casing 10 and between the first terminal 12 and the first clamping plates 13.

The compressor 2 of the present invention comprises an engaging device 20 comprising a first rail and a second rail. The first rail has a first groove 201 and the second rail has a second groove 202, wherein the two respective grooves 201 and 202 are sized to be correspondent to the thin first extension 111 and the thick second extension 112. The thin first extension 111 can be slidably engaged with the first groove 201, and the thick second extension 112 can be slidably engaged with the second groove 202. A second terminal 22 and two second clamping plates 21 extend from a surface of the compressor 2 and located between the two rails. The first terminal 12 is clamped between the two second clamping plates 21 and the second terminal 22 is clamped between the two first clamping plates 13.

The contact area between the first terminal 12 and the two second clamping plates 21, and between the second terminal 22 and the two first clamping plates 13 are large enough, and the first terminal 12 and the second terminal 22 are securely clamped so that no gap is defined between the clamping plates 13/21 and the two terminals 12/22. The detecting pad 14 detects the temperature of the power pack 1 and is connected to a warning light which is not shown so that any abnormal situation can be noticed by the user.

While we have shown and described the embodiment in accordance with the present invention, it should be clear to those skilled in the art that further embodiments may be made without departing from the scope of the present invention.